m52L Quick Start Guide |

This guide walks you through the basic setup needed to get your new Planar displays up and running. Detailed information is contained in the Installation Guide, which is in a CD-ROM on the back of this guide.

Planar Systems, Inc.
1195 NW Compton Drive
Beaverton, OR 97006-1992
Phone: +1 503 748 1100
Toll-free Phone: +1-866-475-2627
Fax: +1 503 748 5532
www.planar.com

Technical Support:
Phone: +1 503 748 5799
Toll-free Phone: +1-866-PLANAR1 (752-6271)
Email: planarsupport@planar.com

Contents

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PLANAR™

Product and Safety Information

The m52L is a 52" diagonal direct-view LCD monitor that can be wall-mounted, ceiling mounted or mounted on a stand. The display can be portrait or landscape. Mounting should be done so the logo is as shown.

Planar
Landscape

Planar
Portrait
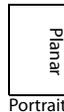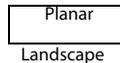
The m52L is 5" deep. It has an aspect ratio of 1.77 (16:9). It accepts a wide range of input pictures from VGA to 1080p.

With the optional Video Input Module, the m52L accepts NTSC and PAL as composite, component, S-Video or SDI. The m52L also accepts composite SECAM and component VGA to 1080p video inputs through the analog connection, as well as HD-SDI input (1080i, 720p).

VESA Mounts

A variety of VESA mounts used to secure the m52L are available through Planar. If you purchased a VESA mount, you should have received a separate box with mounting supplies and an Installation manual. Follow these instructions carefully. Keep the following in mind:

- Screw length is crucial and will vary depending on the type of mount you use.
- Identify where all of the mounting points are located.
- Verify the parts received with the list shown in the VESA Installation manual.

Safety Precautions

Although the m52L was designed with safety in mind, please review the following warnings and cautions.

WARNING! Wall mounts must be secure.

If the display is hung on a wall, the wall must be strong enough to hold it. The m52L weighs about 86lbs (39kg). Mounting a display to wallboard or wall paneling won't be adequate or safe. The mounting method must be capable of holding five times this weight, 430lbs (195kg).

Caution: The screen could be damaged by heavy pressure.

Slight pressure on the LCD will cause image distortion. Heavy pressure will cause permanent damage. Mount displays where viewers cannot touch the screen.

Caution: The front polarizer is soft and subject to scratches from sharp objects.

The polarizer is a thin sheet of film laminated to the outside layer of glass on the LCD screen. Take care when handling items near the screen.

WARNING! The backlight contains mercury.

Lamp(s) inside this product contain mercury. This product may contain other electronic waste that can be hazardous if not disposed of properly. Recycle or dispose in accordance with local, state, or federal Laws. For more information, contact the Electronic Industries Alliance at www.eiae.org. For lamp specific disposal information, check www.lamprecycle.org.

Unpacking the Display

Planning

Before you unpack your displays, you should have a detailed plan of how the displays are to be configured. It should include the following calculations:

- Power (max. of three units per 20A circuit for 115V operation)
- Cable runs
- Ventilation and cooling requirements
- If hanging display on a wall, location of studs in the wall

Have the Following Tools Available:

- Level to ensure the display is hung straight.
- Stud finder (if hanging display on a wall).
- Computer network LAN cables (straight through - no crossover) to interconnect multiple displays for RS232 control.
- LCD screen cleaner or LCD wipes, available at most electronics stores.
- Although a VGA cable is included with every display, you may wish to obtain a long-run VGA, SDI or DVI cable if your source is located far away from the display(s).
- Needle nose pliers to remove staples from the bottom of the shipping box.
- Utility knife to open box and display packaging.
- At least two very strong people to help lift displays into place. If possible, more than two people are recommended.

Unpacking the Display

1. Using a utility knife, open a display's box.
2. Using at least two people, carefully remove the display from the box.
3. Remove the display from its shipping pouch.
4. Install power and source cables.

5. If you are tiling a video wall, install brackets on each display before you set up the wall.

Checking Accessories

Check for the following items included in your accessory box:

- This guide and the Installation Guide CD on the back of this guide
- Remote control (with the batteries already installed)
- Power cord (for use in North America)
- 15-pin cable for analog computer pictures (although it's called VGA, it carries anything up to UXGA)
- Brackets and couplers for video wall installation
- DVI-D cable for use with the monitor

Make sure you have the following customer-supplied items as needed to complete your installation:

- RJ45 to 9-pin adapter, if you will use RS232 commands to control the display
- RJ45 cable, computer network type
- Component video cables
- S-video cables
- SDI cables
- RS232 cable

Installing the Video Input Module (VIM)

If you receive the optional Video Input Module (VIM) separately, use the following instructions to install it. Your VIM shipment should include the following items: VIM board, new VIM cover, mounting screws, washers/nuts and a ground strap.

1 Attach the ground strap to your wrist and the chassis.
2 Turn off the AC power and unplug all cables.

WARNING! Always turn off power and remove the power cord when adding or removing an electronic part.

3 Remove the screws that secure the old VIM cover. Place the screws aside.
4 Remove the old VIM cover.

WARNING! Failure to properly use a grounding strap can destroy sensitive electronic components in the VIM board.

5 Remove the VIM board from its shipping pouch and anti-static bag.
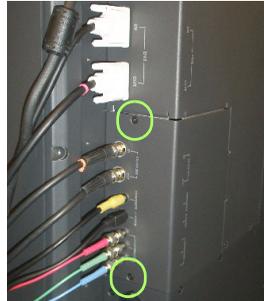
6 Install the VIM board in its place, pressing the VIM board connector into the control board connector.
7 Install the four screws that secure the VIM board.
8 Slide the new VIM board cover in place, making sure the connectors are aligned over the holes in the cover.

Note: If you ordered a VIM with SDI, the SD/HD SDI connectors will appear on the VIM. If your VIM does not have an SDI, you will only see composite, S-video and component connectors.

9 If you have a VIM with SDI, secure the washers and nuts on the SD/HD SDI connectors. Otherwise, go to step 10.
10 Install the screws that secure the new VIM cover.
11 Reconnect all cables, including the power cord. It is now safe to turn on the AC power.

Installing Screen Brackets

The following diagram shows where to place screen brackets if you are tiling the m52L. Before you install a display on a wall, install brackets on the back of the displays.
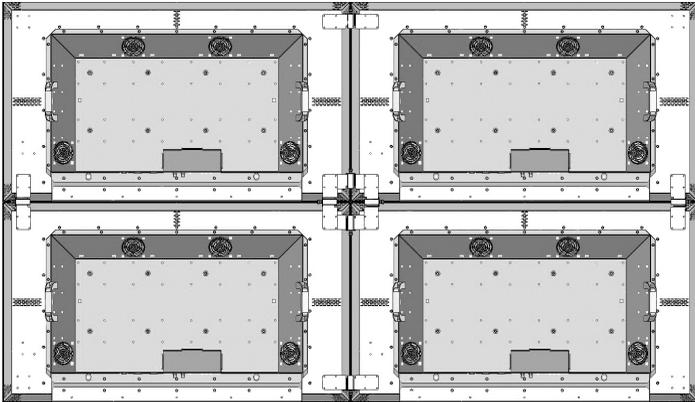
Close-up view of four brackets attaching four displays.
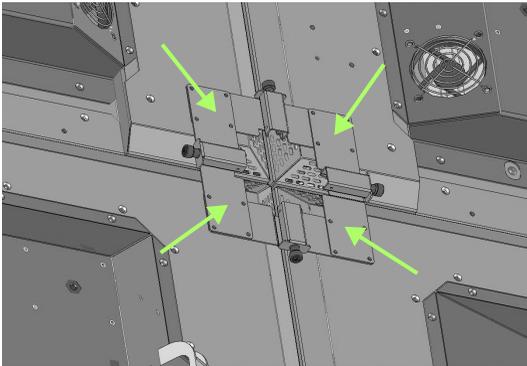
Lining Up Screen Brackets

1 Use the handles to pull displays closer together.

2 Slide the coupler over both brackets where they meet.

3 Tighten the coupler using a screwdriver.

4 Repeat steps 1-3 for each set of displays where they meet.

Connecting Source Cables

The three types of picture sources are:

- Analog computer (from UXGA down to VGA)
- Digital computer - includes HDCP (High-bandwidth Digital Content Protection), which prevents the copying of digital audio and video content
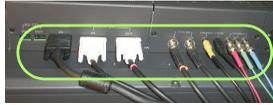- Video (optional with VIM)
  - S-Video (50Hz or 60 Hz)
  - Composite (NTSC, PAL or SECAM)
  - Component (480i, 480p, 576i, 576p, 720p, 1080i)
  - SDI (Serial digital interface inputs from 480i to 1080p)

Analog Input

Digital Input

Video Inputs

Digital Video Interface (DVI) digitally connects computers to their monitors or interconnects to any display.

The m52L converts the analog inputs to DVI and makes this available at the Digital Out connector. This means you can bring in a picture source - UXGA, SXGA, VGA, 1080p - to the first display and connect the rest of the displays in the loop with DVI. The **advantages** of DVI are:

- DVI is less subject to picture degradation than analog methods of loop-through. (Even with DVI, loop-through is not infinite.)
- DVI inputs require much less setup and adjustment. You adjust the picture in the first display only, the display with the analog input. Setup time is reduced.

Note: Due to copyright protection protocols, the Digital Out connector will be disabled when viewing the HDCP DVI input.

Depending on which input is selected, the Digital Out connector will show the picture from the analog input or the digital input.

Selecting the Correct Input

The following table gives you common examples of which devices have which inputs. In terms of input quality, the table is ordered from the most desirable input to the least desirable input.

Input	Found on the Following Devices
DVI	Computers with digital out capability
SDI	Studio quality video equipment
Analog	Computers, laptops RGB and RGBS from video processors or other professional equipment (may need BNC to DB15 adapter cable). These may have separate sync, composite or sync on green.
Component	DVD players Set top boxes (e.g. for cable TV or satellite TV) Any YPbPr signal
S-Video	DVD players Set top boxes VCRs
Composite	TV tuners VCRs Set top boxes

Connecting Power, Turning Display On/Off

The m52L typically draws up to 4.5A at 115V or 2.25A at 230V. For countries outside of North America, it is the responsibility of the installer to provide the power supply cord certified for use in the destination country.

Connect a power cable to the power supply and to an AC source. The power supply is auto-ranging, so it works with any source from 100 to 240 VAC, 50 to 60 Hz.

The AC Master switch is located next to the power receptacle, both of which are located in the rear of the display.

About UPS Supplies

Some installations use a UPS - Uninter-ruptible Power Supply. Most UPS devices will work with the m52L. Review the power specifications of your UPS device to make sure it is compatible with the m52L.
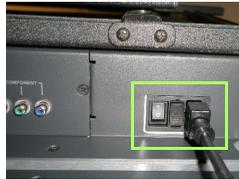
Turning Power On/Off

1 With the power cord attached, turn on the power switch located on the back of the unit.
2 Turn on the m52L by aiming the remote at the IR sensor in the lower right corner of the screen (landscape) or the lower left corner of the screen (portrait), and pressing the ON button.
3 To turn off the m52L, press the OFF button.

Using the Remote and Menus

Using the Remote Control

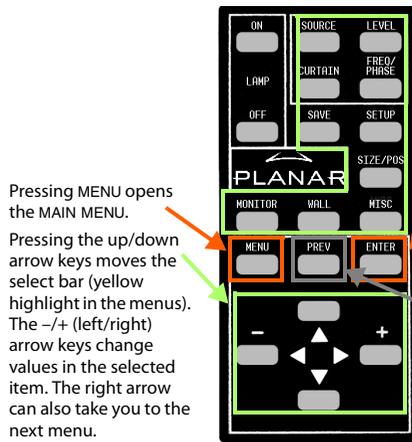The remote control works much like a remote control for a TV or DVD player, but it does more. Among other things, it opens menus, changes values and moves the image.

The remote control operates with IR (infrared) signals going to the IR receiver, which is located behind the lower center of the screen.

Pressing MENU opens the MAIN MENU.

Pressing the up/down arrow keys moves the select bar (yellow highlight in the menus). The –/+ (left/right) arrow keys change values in the selected item. The right arrow can also take you to the next menu.

Some of these "hot keys" go directly to the most-used menus. Some of them go to several menus, if you push the button more than once. SOURCE, SETUP and CURTAIN perform special actions without menus.

Pressing ENTER moves to the next menu, when it has a right-pointing arrow, or it toggles the highlighted item on and off.

Pressing PREV reverts to the previous menu.

To open menus on the m52L, aim the remote at the screen and press the desired button(s).

Using the Menus

The m52L's menus and functions are arranged in groups and can be accessed through grouped functions or by using direct access keys. The starting point for accessing menus is the MENU button on the remote.

1   Press MENU on the remote to display the MAIN MENU.

Main Menu	PLANAR
Picture	▶
Size & Position	▶
Aspect Ratio & Wall	▶
Memory	▶
Diagnostics	▶
Advanced Options	▶
Program Information	▶

2   Use the up/down arrow keys to move through menu options. See explanations next to the remote control picture on this page for additional navigation information.

Some of the setups described in this Quick Start Guide will explain how to navigate through specific menus. Most of the menus are explained in detail in the Installation Guide CD.

Selecting a Source

In this guide, a source is any type of picture. It might be an analog computer image, a video processor, a VCR or DVD, or it might be a DVI picture from a computer.

Selecting the Source Automatically

1 Press SOURCE on the remote. The m52L goes to the next connector that has a valid picture on it and displays that picture.

2 If you want to select a different source, press SOURCE again to select the next connector (that has a valid picture on it) and display the picture.
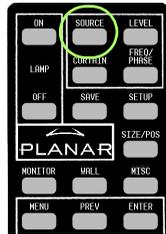
Note: If a connector does not have a valid source, the m52L briefly displays that it has scanned that connector and then proceeds to the next connector.

Selecting the Source Manually

1 Press FREQ/PHASE on the remote. The m52L displays the PICTURE menu for the current source.

Picture	PLANAR
Source	Digital ▶
Vertical Frequency (frame locked)	60Hz
Horizontal Frequency	50.00kHz
Horizontal Resolution	1366
Vertical Resolution	768
Sharpness	4

2 Using the up/down arrows, select the SOURCE line and press ENTER.

Note: The SOURCE submenu displays to the right of the PICTURE menu.

3 In the SOURCE submenu, use the up/down arrow keys to select the desired source.

4 When the desired source is selected, press ENTER. The PICTURE menu changes to display the settings for that source.

When the Source is Familiar to m52L

When a "new" source is selected, the m52L looks through a list of the last 10 picture types it used. If the "new" source is like a previous one in this list (resolution, number of active lines, etc.), the m52L uses the stored data and does not do anything in the AUTO SETUP OPTIONS menu. This saves time, and the picture is displayed faster without going through adjustments, which are visible on the screen.

Best Way to Change a Source

The best way to select a source is to recall a configuration your installer has created for you. See the Installation Guide CD for more detailed information.

1 On the remote, press SAVE. The RECALL menu displays.

2 Using the arrow keys, scroll to one of the numbered configurations your installer has created for you.

3 Press ENTER to show the RECALL SLOT menu.

4 With the RECALL NOW line selected, press ENTER. If the top of the menu displays "Current," the source is identical to the settings stored in the memory slot.

Adjusting Levels for Analog Sources

This page applies to analog RGB (computer) pictures only. The levels are best adjusted semi-automatically.

For analog RGB pictures, the levels for black and white vary from one computer to another, or from one video processor to another. They even vary between video outputs from a multiple-output video card in a computer.

Your pictures will not look their best on the m52L until you adjust for these differences. This is *not* about adjusting color or contrast. It's about telling the m52L what the computer or processor means by black and by white.

Semi-Automatic Level Adjustment

1 Select a source in the PICTURE menu. Display an all-black picture from the source computer. *This must come from the computer source that will be used for the program.*

Note: We suggest displaying a black screen using Windows® Paint.

2 To open the INPUT LEVELS menu, press LEVEL.
3 Select AUTO BLACK LEVEL and press ENTER. This menu line says "Working…" until the process is complete.

Note: When doing Auto Black and Auto White with an interlaced analog input, the color of the picture will change while it is working, then it will change back to normal.

4 Display an all-white picture from the source computer.
5 In the INPUT LEVELS menu, select AUTO WHITE LEVEL and press ENTER. Wait for "Working…" to disappear.
6 The m52L is now adjusted to the black and white levels of this computer using this video card. If you change computers or video output cards in the computer, you must do this again.
7 Save the configuration to a memory slot.

Manual Level Adjustment

1 Select a source in the PICTURE menu. Display an all-black picture from the source computer.
2 In the INPUT LEVELS menu, Press LEVEL on the remote.
3 Select BLACK LEVEL and adjust it up and down with the -/+ keys to make the three center point values go to zero. Once any value reaches zero, use the individual colors under BLACK LEVEL to adjust the other two values to zero.

Input Levels		PLANAR		
☼ **Auto Black Level (offset)**				
◐ **Auto White Level (gain)**				
Center Point		64	124	99
☼ **Black Level (offset)-All**	– ( ) +			79
Red	– ( ) +			89
Green	– ( ) +			67
Blue	– ( ) +			83
◐ **White Level (gain)-All**	– ( ) +			99
Red	– ( ) +			99
Green	– ( ) +			99
Blue	– ( ) +			99

4 Display an all-white picture from the source computer.
5 Adjust WHITE LEVEL until the image maximums just go to 255. Once any value reaches 255, use the individual colors under white level to adjust the other two values to 255.
6 Although it's not required, it is recommended that you save the configuration to a memory slot. See the Installation Guide CD for more information.

9 Adjust Levels, Analog

Adjusting Input Levels and Position

Adjusting Levels for Video Sources

Video sources are adjusted best if a color bar test pattern is available from the video source: the DVD or VCR player. If not, you will have to adjust by eye and the "feel" of the picture.

Note: When a video source is selected, Auto Setup Options are not available. Adjustments must be made manually.

Adjusting the Picture

1 Select a video source in the PICTURE menu.
2 Press LEVEL on the remote to open INPUT LEVELS.

Input Levels			PLANAR
☼ Brightness	– ( ) +		140
◑ Contrast	– ( ) +		165
Saturation	– ( ) +		150
Hue	– ( ) +		128
☐ Blue Only			

3 Adjust one of the following:
   • Any picture from the video source.
   • Using a standard SMPTE color bar pattern from the source.

Adjusting With Color Bars

1 If possible, use a SMPTE color bar pattern from the video source you will use for the program material.
2 In the INPUT LEVELS menu, check BLUE ONLY. You should see the alternate color bars, all of them blue.
3 Adjust SATURATION to make the outer two color bars match. Match them in brightness; they will already match in color.
4 Adjust HUE to make the inner two color bars match.
5 Uncheck BLUE ONLY.

6 If the color bar pattern has a pluge (Picture Line-Up Generation Equipment), you can use it to adjust brightness. Pluge is used to calibrate the black level on a video monitor.

Adjust brightness so you can't see the difference between these two marks

But you can you *can* see the difference between these two marks

7 Although it's not required, it is recommended that you save the configuration to a memory slot. See the Installation Guide for more information about saving memory slots.
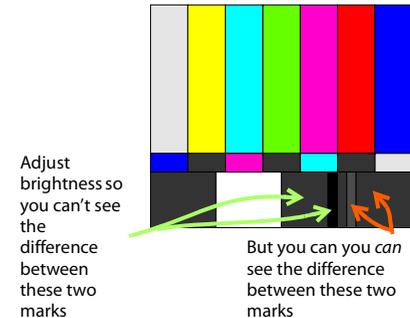
Adjusting Position

Position moves the picture on the screen but does not move the menus. Press SIZE/POS on the remote once to open the PICTURE POSITION menu. The four arrow keys move the picture on the screen.

The numbers for Horizontal and Vertical Position refer to the number of pixels from sync to the first displayed pixel. These numbers get smaller as the picture moves up and to the left.

The Horizontal Position number shows the number of pixels from the beginning of H sync to the first active pixel. Because there are many black pixels after H sync, this number will not be zero when the picture is at the left border of the screen.

The Vertical Position number is the number of lines from V sync to the first active line, so it will not be zero when the picture is at the top of the screen.

Color Balancing for One Display

Color Balance is used to match the colors of adjacent displays when several displays are arranged in an array. You can also use it to adjust the color of a single display.

For one display, the Color Balance controls can be used to set the color temperature of that display.

1 To access the COLOR BALANCE menu, press MISC once on the remote.

Color Balance						PLANAR	
Color Temperature							Native
White Balance - All							(Clipboard)
Red		–		+		100	(100)
Green		–		+		100	(100)
Blue		–		+		100	(100)
Gray Balance - All							
Red		–		+		7	(7)
Green		–		+		7	(7)
Blue		–		+		7	(7)
Test Pattern							Off
Hide Menu							
Copy to Clipboard							
Recall From Clipboard							
Reset to Defaults							

2 The m52L defaults to the brightest setting possible, which is 100 in the red, green and blue lines under WHITE BALANCE. You can choose a different color temperature by setting it in the COLOR BALANCE menu.

3 Select the COLOR TEMPERATURE line and then select from 3200°K (Warm), 5500°K, 6500°K and 8500°K (Cool). If you want the brightest display, select the NATIVE option.

Note: Changing the color temperature changes the three WHITE BALANCE values. You can also change the WHITE BALANCE values individually to create a custom color temperature. Once you have changed the values, a new CUSTOM option is available on the COLOR TEMPERATURE line.

Color Balancing for Multiple Displays

Color balancing makes the individual displays in an array show the same colors. Colors vary slightly from one display to the next, because of slight variations in the backlights and display panels. Color balancing can compensate for this.

When your wall is first installed, the installer will run an ACB and then perform manual color balance adjustments.

Note: You can manually color balance after an ACB to fine-tune settings. These will be kept even after another ACB is performed.

Manual Color Balancing

To color balance, you only have to match whites and grays. When you make all the displays look the same with white and gray, all the other colors will look the same.

Caution: Do not match the colors of the displays with the Black and White Level controls or with the video controls.

Caution: If you are color blind, even a little bit, do not color balance your array. Have someone else color balance the wall.

1   Turn on all the displays in the array and let them warm up for at least five minutes. The backlights must be thoroughly warm before you color balance.
2   On each display, open the BACKLIGHT CONTROL menu (MENU > ADVANCED OPTIONS > BACKLIGHT SETTINGS).
3   Set BACKLIGHT CONTROL MODE to MANUAL.
4   Set (or confirm) BACKLIGHT INTENSITY to 10 (100%).
5   On each display, open the COLOR BALANCE menu by pressing MISC once on the remote.
6   If the array has never been color balanced, make sure you start with the NATIVE color temperature option on each

display. If you don't need a specific color temperature, use NATIVE, which is the brightest.
7   On each display, highlight TEST PATTERN and use the left/right arrow keys until the menu displays WHITE.

Note: Always use the internal Test Patterns for color balancing.

8   When all displays are white, find the *least bright* display in the array. This will be the "baseline" display, and you will *not* adjust it. All other displays will be adjusted to this baseline display.
9   Choose a display next to the baseline display and adjust its white values (red, green and blue) to make it match the baseline display. Concentrate on the center of the displays, not the adjacent edges.
10 Continue with other adjacent displays until all the displays have the same appearance when white. Be careful not to change the values of displays once you are satisfied with them.
11 When all displays look the same when showing the White test pattern, select the Gray test pattern in all displays.
12 Choose any display as the new baseline display. It does not need to be the baseline display you used for white.
13 Adjust gray for all the displays until they match the baseline display. Do one display at a time. Again, match the center part of the picture, not the edges.
14 When all displays match in gray, close all the menus. The test pattern automatically turns off.

Recommended Usage

In order to get the most out of your m52L, use the following recommended guidelines to optimize the display.

Burn-In Versus Temporary Image Retention

Burn-in causes the screen to retain an image essentially forever, with little or no way to correct the problem. Under normal use, an m52L will not experience burn-in, as plasma displays do, nor will it retain images in any way.

Normal use of a m52L is defined as displaying continuously changing video patterns or images. However, m52Ls can experience temporary image retention when recommended usage guidelines are not followed.

What is Temporary Image Retention?

Temporary image retention (TIR) can occur when a static image is displayed continuously for extended periods of time (12 hours or longer). An electrical charge differential may build up between the electrodes of the liquid crystal, which causes a negative-color video image (color-inverted and brightness-inverted version of the previous image) to be retained when a new image is displayed. This behavior is true for any LCD device from any LCD manufacturer.

Note: Normal use of any LCD device does not cause TIR.

Static Image Applications

Typical static image applications include airports, transit stations, stock markets, banks, and command/control installations, or anywhere a fixed image is displayed continuously for 12 or more hours.

Static Image Display Guidelines

Here are some guidelines to help you avoid TIR:

- Use the m52L to show moving images or still pictures that change regularly.
- Turn the display off when it is not in use. There are several ways to do this automatically:
  - To use the display's real-time clock, schedule an event. See the Installation Guide CD for information.
  - To use your source computer's Power Options Properties, set up your computer to turn off the monitor when not in use. You also need to check the DPMS checkbox and set the DPMS DELAY box in the BACKLIGHT CONTROL menu.
  - To use RS232 commands, see the Installation Guide CD.

Caution: It is suggested that you turn off the backlight power for six hours per day. When using high-contrast images, reposition the images frequently.

Normal Use Thermal Guidelines

Normal use of an m52L is defined as operating in the open air to prevent heat buildup, and without direct or indirect heat sources such as adjacent displays, lighting fixtures, heating ducts, or direct sunlight that can cause the display to experience high operating temperatures. At 2000m or below, the maximum ambient operating temperature cannot be above 35º C (30º C with cover glass) nor below the minimum ambient operating temperature of 0º C. If one of these conditions exists, it is up to the installer to ensure that display placement is changed, thermal shielding is provided and/or additional ventilation is provided to keep the display within its nominal operating parameters.

Declaration of Conformity

Manufacturer's Name: Planar Systems, Inc.
Manufacturer's Address: 1195 NW Compton Drive
                                     Beaverton, OR 97006

Declares that the products
      Model Numbers: m52L (Direct-view LCD)
Conforms with the provisions of:

Council Directive 2004/108/EC on Electromagnetic Compatibility;

EN55022:1998 Radiated and Conducted Emissions from IT Equipment

EN55024:1998 Immunity of IT Equipment

Including:	EN61000-4-2	Electrostatic Discharge
	EN61000-4-3	Radiated Immunity
	EN61000-4-4	Electrical Fast Transients
	EN61000-4-5	Line Surge
	EN61000-4-6	RF Conducted Susceptibility
	EN61000-4-8	Magnetic Field Immunity
	EN61000-4-11	Voltage Dips and Interrupts
And:	EN61000-3-2	Harmonic Current Emissions
	EN61000-3-3	Voltage fluctuations and Flicker

Council Directive 2006/95/EC on Low Voltage Equipment Safety:

EN60950:2001 Safety of IT Equipment

The Technical Construction File required by this Directive is maintained at the corporate headquarters of Planar Systems, Inc., 1195 NW Compton Drive, Beaverton, OR 97006.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada (ICES-003): This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.
Any changes or modifications to the display not expressly approved by Planar could void the user's authority to operate this equipment.

Other Certifications: CISPR 22